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**Research Interests:**

My research interests are mainly on analyses of climate and weather processes using both satellite-based observations and models. My research covers many topics that include Saharan dust transport and radiative effect, water and energy balances in the atmosphere, variability of Indian summer monsoon, tropopause variability, stratospheric and tropospheric chemistry, and connection among clouds, precipitation and large-scale dynamical systems. I am a scientist at the JPL Atmospheric Physics and Weather group and responsible for validation of AIRS temperature and specific humidity retrievals against radiosonde measurements.

**Education:**

The Chinese University of Hong Kong, B.S. in Physics (with honor), 1992  
Columbia University, M.A. and M.Phil. in Physics, 1995  
Columbia University, Ph.D. in Physics, 1999

**Employment:**

2009-present: Research Scientist, Jet Propulsion Laboratory, Pasadena, CA  
2005-2009: Assistant Research Scientist, Department of Atmospheric Science, Texas A&M University, College Station, TX.  
2003-2005: Postdoctoral Research Associate, Earth System Science Interdisciplinary Center, University of Maryland, College Park, MD.  
1999-2003: Postdoctoral Research Associate, Atmospheric Science Research Center, State University of New York at Albany, Albany, NY.

**Experience and Service:**

2005-present: Reviewer for *Science*, *Geophys. Res. Lett.* (AGU), *J. Geophys. Res.* (AGU), *J. Climate* (AMS), *J. Appl. Met. and Clim.* (AMS), *Atmos. Env.*, and *Annales Geophysicae* (EGU)  
2000-2003: Building a coupled tropospheric climate-chemistry model based on NCAR CCM3 and UiO chemistry module  
1999-2000: Conducted long-term climate simulation in SUNY at Albany for the Atmospheric Model Intercomparison Project 2 (AMIP2)

**Honor and Award:**

2005: Article “Suppression of deep convection over the tropical North Atlantic by the Saharan Air Layer” highlighted by *Geophys. Res. Lett.*

## **Publications:**

- Wong, S.**, and J. Teixeira (2016), Extreme weather and tropical climate: Scaling of extremely cold brightness temperature over the ocean to tropical sea surface temperature and possible implications for global warming, *J. Climate*, 29, 3893-3905, doi:10.1175/JCLI-D-15-0214.1.
- Yue, Q., E. J. Fetzer, B. H. Kahn, M. Schreier, **S. Wong**, X. Chen, and X. Huang (2016), Observation-based longwave cloud radiative kernels derived from the A-train, *J. Climate*, 29, 2023-2049, doi:10.1175/JCLI-D-15-0257.1
- Wong, S.**, E. J. Fetzer, M. Schreier, G. Manipon, E. F. Fishbein, B. H. Kahn, Q. Yue, and F. W. Irion (2015), Cloud-induced uncertainties in AIRS and ECMWF temperature and specific humidity, *J. Geophys. Res.*, 120, doi:10.1002/2014JD022440.
- Wang, T., **S. Wong**, E. J. Fetzer (2015), Cloud regime evolution in the Indian monsoon intraseasonal oscillation: Connection to large-scale dynamical conditions and the atmospheric water budget, *Geophys. Res. Lett.*, 42, 9465-9472, doi:10.1002/2015GL066353.
- Kalmus, P., **S. Wong**, and J. Teixeira (2015), The Pacific subtropical cloud transition: a MAGIC assessment of AIRS and ECMWF profiles in the northeast Pacific, *IEEE Geosci. And Remote Sens. Lett.*, 12, 1586-1590.
- Boylan, P., J. Wang, S. Cohn, E. Fetzer, E. Maddy, and **S. Wong** (2015), Validation of AIRS Version 6 Temperature Profiles and Surface-Based Inversions over Antarctica using Concordiasi Dropsonde Data, *J. Geophys. Res.*, 120, 992-1007, doi:10.1002/2014JD022551.
- Ryoo, J., D. Waliser, D. Waugh, **S. Wong**, E. Fetzer, and I. Fung (2015), Classification of atmospheric river events on the U.S. west coast using a trajectory model, *J. Geophys. Res.*, 120, doi:10.1002/2014JD022023.
- Ye, H., E. J. Fetzer, **S. Wong**, A. Behrangi, D. Yang, and B. H. Lambrightson (2015), Increasing atmospheric water vapor and higher daily precipitation intensity over Northern Eurasia, *Geophys. Res. Lett.*, 42, 9404-9410, doi:10.1002/2015GL066104.
- Ye, H., E. J. Fetzer, A. Behrangi, **S. Wong**, B. H. Lambrightsen, C. Y. Wang, J. Cohen, and B. L. Gamelin (2015), Increasing daily precipitation intensity associated with warmer air temperatures over Northern Eurasia, *J. Climate*, 29, 623-636.
- Wong, S.**, T. S. L'Ecuyer, W. S. Olson, X. Jiang, and E. J. Fetzer (2014), Local balance and variability of atmospheric heat budget over oceans: Observation and reanalysis-based estimates, *J. Climate*, 27, 893-913.
- Li, J.-L. F., W.-L. Lee, D. E. Waliser, J. P. Stachnik, E. Fetzer, **S. Wong**, Q. Yue (2014), Characterizing Tropical Pacific Water Vapor and Radiative Biases in CMIP5 GCMs: Observationally-Based Analyses and A Snow and Radiation Interaction Sensitivity Experiment, *J. Geophys. Res. Atmos.*, DOI: 10.1002/2014JD021924.
- Jiang, X., T. L. Kubar, **S. Wong**, W. S. Olson, and D. E. Waliser (2014), Modulation of marine low clouds associated with the tropical intraseasonal variability over the eastern Pacific. *J. Climate*, 27, 5560-5574.
- Ye, H., E. J. Fetzer, **S. Wong**, A. Behrangi, E. T. Olsen, J. Cohen, B. H. Lambrightsen, and L. Chen (2014), Impact of increased water vapor on precipitation efficiency over northern Eurasia, *Geophys. Res. Lett.*, 41(8), 2941-2947.
- Behrangi, A., **S. Wong**, K. Mallick, J. Fisher (2014), On the net surface water exchange rate estimated from remote sensing observation and reanalysis, *International J. of Remote Sensing*, 2170-2185.
- Yue, Q., E. J. Fetzer, B. H. Kahn, **S. Wong**, G. Manipon, A. Guillaume, and B. Wilson (2013), Cloud-state dependent sampling in AIRS observations based on CloudSat cloud classification. *J. Climate*, 26, 8357-8377.
- Guo, Y., B. Tian, R. A. Kahn, O. Kalashnikova, **S. Wong**, and D. E. Waliser (2013), Tropical Atlantic dust and smoke aerosol variations related to the Madden-Julian Oscillation in

- MODIS and MISR observations, *J. Geophys. Res. Atmos.*, 118, 4947–4963, doi:10.1002/jgrd.50409.
- A. Behrangi, M. Lebsack, **S. Wong**, and Bjorn Lambrigtsen (2012), On the quantification of oceanic rainfall using spaceborne sensors, *J. Geophys. Res.*, **117**, doi:10.1020/2012JD017979.
- Wong, S.**, E. J. Fetzer, B. H. Kahn, B. Tian, B. H. Lambrigtsen, and H. Ye (2011), Closing the global water vapor budget with AIRS water vapor, MERRA reanalysis, TRMM and GPCP precipitation, and GSSTF surface evaporation, *J. Climate*, **24**, 6307-6321.
- Wong, S.**, E. J. Fetzer, B. Tian, B. H. Lambrigtsen, and H. Ye (2011), The apparent water vapor sinks and heat sources associated with the intraseasonal oscillation of the Indian summer monsoon, *J. Climate*, **24**, 4466-4479.
- Liang, C. K., A. Eldering, A. Gettelman, B. Tian, **S. Wong**, E. J. Fetzer, and K. N. Liou (2011): Record of tropical interannual variability of temperature and water vapor from a combined AIRS-MLS dataset, *J. Geophys. Res.*, **116**, doi:10.1029/2010JD014841.
- Tian, B., D. E. Waliser, R. A. Kahn, and **S. Wong** (2011): Modulation of Atlantic aerosols by the Madden-Julian oscillation, *J. Geophys. Res.*, **116**, doi:10.1029/2010JD015201.
- Wong, S.**, A. E. Dessler, N. M. Mahowald, P. Yang, and Q. Feng (2009), Maintenance of lower tropospheric temperature inversion in the Saharan Air Layer by dust and dry anomaly, *J. Clim.*, **22**, 5149-5162.
- Dessler, A. E., and **S. Wong** (2009), Climate model simulations of the water vapor climate feedback during the El Niño Southern Oscillation, *J. Clim.*, **22**, 6404-6412.
- Wong, S.**, A. E. Dessler, N. M. Mahowald, P. R. Colarco, and A. da Silva (2008), Long-term variability in Saharan dust transport and its link to North Atlantic sea surface temperature, *Geophys. Res. Lett.*, **35**, doi:10.1029/2007GL032297.
- Wong, S.**, and A. E. Dessler (2007), Regulation of H<sub>2</sub>O and CO in tropical tropopause layer by the Madden-Julian oscillation, *J. Geophys. Res.*, **112**, D14305, doi:10.1029/2006JD007940.
- Wong, S.**, P. R. Colarco, and A. E. Dessler (2006), Principal component analysis of the evolution of the Saharan Air Layer and dust transport: Comparisons between a model simulation and MODIS and AIRS retrievals, *J. Geophys. Res.*, **111**, D20109, doi:10.1029/2006JD007093.
- Wong, S.**, and A. E. Dessler (2005), Suppression of deep convection over the tropical North Atlantic by the Saharan Air Layer, *Geophys. Res. Lett.*, **32**, L09808, doi:10.1029/2004GL022295
- Wong, S.**, W. -C. Wang, I. S. A. Isaksen, T. K. Berntsen, and J. K. Sundet (2004), A global climate-chemistry model study of present-day tropospheric chemistry and radiative forcing from changes in tropospheric O<sub>3</sub> since the preindustrial period, *J. Geophys. Res.*, **109**, D11309, doi:10.1029/2003JD003998.
- Gauss, M., I. S. A. Isaksen, **S. Wong**, and W. -C. Wang (2003), Impact of H<sub>2</sub>O emissions from cryoplanes and kerosene aircraft on the atmosphere, *J. Geophys. Res.*, **108**(D10), 4304, doi:10.1029/2002JD002623.
- Wong, S.**, and W. -C. Wang (2003), Tropical-extratropical connection in interannual variation of the tropopause: Comparison between NCEP/NCAR reanalysis and an atmospheric general circulation model. *J. Geophys. Res.*, **108**(D2), 4043, doi:10.1029/2001JD002016.
- Wong, S.**, and W. -C. Wang (2000), Interhemispheric asymmetry in the seasonal variation of the zonal mean tropopause. *J. Geophys. Res.*, **105**, 26,645-26,659.
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- Shindell, D. T., **S. Wong**, and D. Rind (1997), Interannual variability of the Antarctic ozone hole in a GCM. Part I: The influence of tropospheric wave variability. *J. Atmos. Sci.*, **54**, 2308-2319.

**Manuscripts in Preparation:**

**Wong, S.,** A. D. Del Genio, T. Wang, B. Kahn, E. J. Fetzer, and T. S. L'Ecuyer (2016), Water budget related large-scale dynamical regimes and clouds over the tropical ocean: Diagnostics of GISS E2 atmospheric general circulation model, *J. Climate*, in review.